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| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/806,981 | JANG ET AL. | |
| | Examiner | Art Unit | |
| | (Nancy) Thanh-Nhan P. Nguyen | 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/16/2006.
2. ☒ The allowed claim(s) is/are 1-11, 13-31 and 33-35.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |



David Nelms
 Supervisory Patent Examiner
 Technology Center 2800

EXAMINER'S AMENDMENT

1. This communication is responsive to Amendment dated 3/16/2006.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

A. Since the title of the invention is not descriptive, a new title is required that is clearly indicative of the invention to which the claims are directed.

The title has been changed to: "Liquid crystal display comprising the spacers disposed near the liquid crystal inlet, wherein the spacers have prism shapes or elliptical column shapes."

B. This application is in condition for allowance except for the presence of claims 36-47 directed to non-elected without traverse. Accordingly, claims 36-47 are cancelled.

3. Upon the examination, claims 10, 11, 13-23, 31 and 33-35 have been re-joined (withdrawn from Restriction/Election requirement dated 9/20/2005) since they depend on allowable claims. Accordingly, claims 1-11, 13-31 and 33-35 are pending for examination.

Allowable Subject Matter

Claims 1-11, 13-31 and 33-35 are allowed.

Reasons for Allowance

Claims 1-11, 13-31 and 33-35 are allowed since there is no prior art of record that teaches or suggests a liquid crystal display apparatus comprising a relationship of various elements as claimed with the specific allowable subject matter cited in the following claim:

Claims 1 and 24:

- a first spacer disposed between the first and second substrates
- a second spacer disposed near the liquid crystal inlet
- wherein each of the second spacers has a prism shape or an elliptical column shape, the prism shape having an approximately triangular cross section with three surfaces wherein one of the three surfaces is substantially perpendicular to a liquid crystal injection direction, and the elliptical column shape having an elliptical cross section with a long axis that is parallel to the liquid crystal injection direction.

Claims 7:

- a first spacer disposed between the first and second substrates
- a second spacer disposed near the liquid crystal inlet
- wherein the width of the liquid crystal inlet is in a range of about 11 mm to about 20 mm, a number of the second spacer is plural, a first distance between the second spacers is in a range of about 1.5mm to about 2.0 mm, and a second distance between the second spacer and an edge of the liquid crystal inlet is in a range of about 0.5mm to about 1.5 mm.

Claim 29: A method of manufacturing a liquid crystal display apparatus comprising:

- forming a first display part on a first mother substrate
- forming first and second spacers on the first display part and outside of the first display part corresponding to the liquid crystal inlet respectively
- forming third spacers on the outside of the first display part so as to prevent a cell gap from being narrowed
- wherein a width of the liquid crystal inlet is in a range of about 11 mm to about 20 mm, a number of the second spacer and a number of the third spacer are plural, a first distance between the second spacers and between the third spacers is in a range of about 1.5 mm to about 2.0 mm, and a second distance between the second spacer and an edge of the liquid crystal inlet and between the third spacer and the edge of the liquid crystal inlet is in a range of about 0.5 mm to about 1.5 mm

Claims 2-6, 8-11 and 13-23 are allowed since they depend on allowed claim 1.

Claims 25-28, 30, 31 and 33-35 are allowed since they depend on allowed claim 24.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hiroshima et al (US 6,705,584) discloses a liquid crystal display device comprising first spacers and second spacers, wherein second spacers having columnar shapes disposed near the liquid crystal inlet with a long axis that is parallel to the liquid crystal injection direction.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen
Examiner
Art Unit 2871


David Nelms
Supervisory Patent Examiner
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